North Eastern River Basin Management Plan

Heavily Modified Water Bodies – North Eastern River Basin District

December 2009

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In this document:

GBNI3NE0019 and GBNI1NE050505114	**- SILENT VALLEY AND KILKEEL RIVER**
GBNI1NE050505110	**- FOFANNY**
GBNI1NE050505036	**- ANNALONG**
GBNI1NE050502084	**- BALLYHOLME**
GBNI1NE050504085	**- CULLY'S BURN**
GBNI1NE050504080	**- ENLER**
GBNI1NE050503087	**- CONNSWATER**
GBNI1NE050503003	**- BLACKSTAFF**
GBNI1NE050503002	**- BLACKSTAFF**
GBNI1NE050503119	**- CLOWNEY**
GBNI1NE050503104	**- DERRIAGHY**
GBNI3NE0028 and GBNI1NE050501004	**- LOUGH MOURNE**
GBNI1NE050501120	**- WOODBURN**
GBNI1NE040403064	**- COLIN BURN**
GBNI1NE040404049	**- ALTNAHINCH**
GBNI1NE040404053	**- BURN GUSHET**
GBNI1NE040404054	**- BURN GUSHET**
GBNI1NE050503108	**- LAGAN CANAL**

In *'Water bodies removed from heavily modified water body list'*

GBNI1NE050502083	**- BALLYSALLAGH**

GBNI3NE0019 and GBNI1NE050505114 - WE / DWS

Impoundment Name/Works	Silent Valley Reservoir
Morphological Impact	Yes 2 Impoundment Present
Height of Impoundment	35m 22m (Ben Crom)
Compensation Flow Ml/D	No
Hydrology Impacted	Yes
Wider Environment	Eastern Mournes ASSI, AONB, SAC

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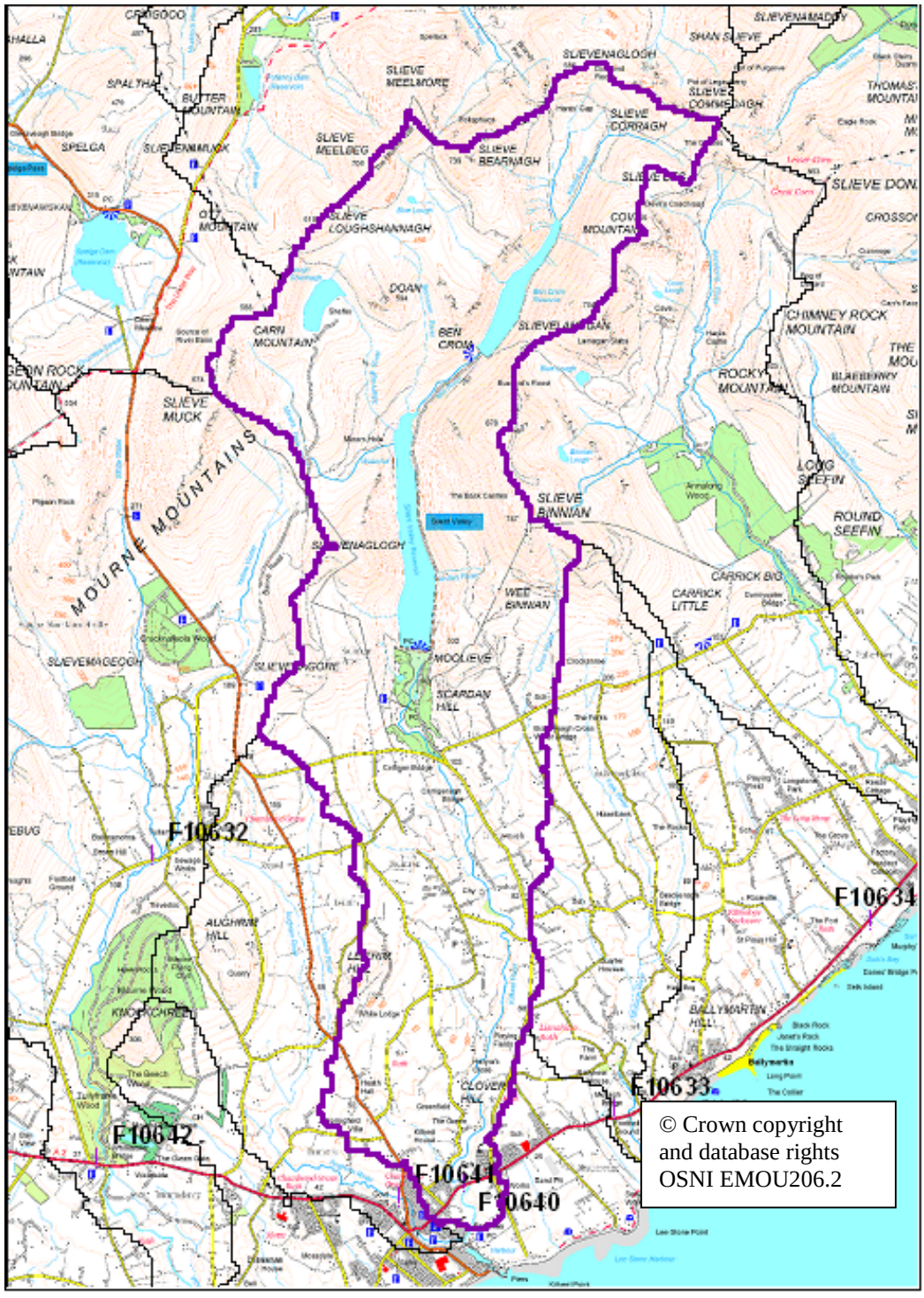


Silent Valley

At the workshop it was discussed that the impoundments were having an adverse impact on the downstream river flows and on the morphology characteristics of the downstream river. To mitigate these measures the river downstream could be re-engineered and freshets would help move sediment downstream. There is currently a spill mechanism to move sediment but it was not considered to be adequate and this would require further discussions with NIW. Brown trout are present in Ben Crom stream.

GBNI3NE0019 - WE / DWS

Workshop classification for reservoir: MEP
Chemical status: GOOD
Biological status: HIGH

2009 Classification of Reservoir: MEP

GBNI1NE050505114 – Kilkeel River WE / DWS

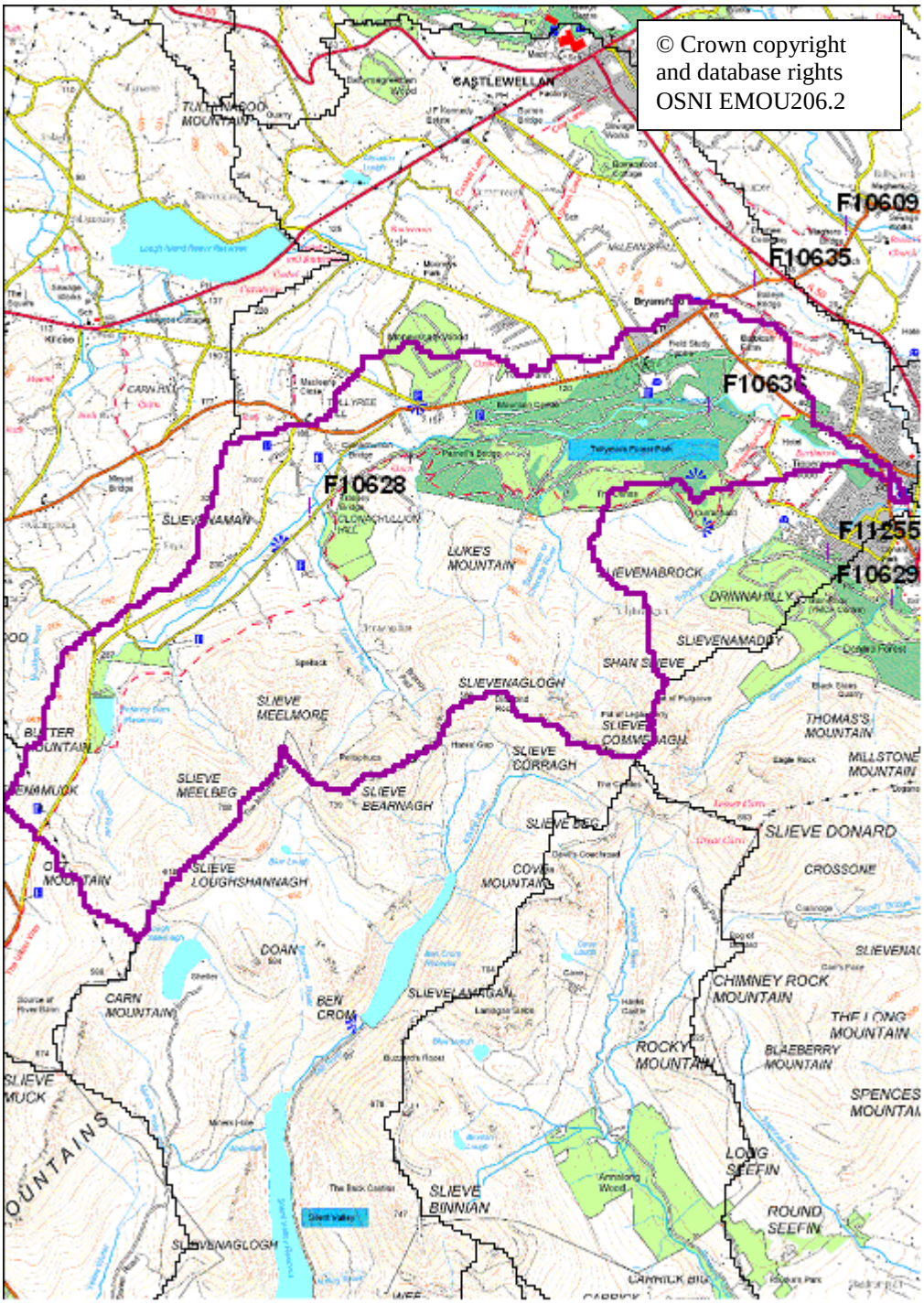
Workshop classification for river: MEP
Phys/Chem status: Moderate
SP: High
Biological status: Bad (fish*)

2009 Classification of River: MEP

*Following UKTAG guidance the fish were not used to downgrade classification.

GBNI1NE050505110 – WE / DWS

Impoundment Name/Works	Fofanny Reservoir
Morphological Impact	Yes Impoundment Present
Height of Impoundment	6m
Compensation Flow Ml/D	Yes 2.28
Hydrology Impacted	Yes
Wider Environment	Eastern Mournes ASSI, AONB, SAC



Fofanny

At the workshop it was decided that fish migration is unlikely to be impacted on by the impoundment despite good populations being further downstream. The impoundment is having an adverse impact on the downstream river flows. There is a baseline compensation flow but this needs reviewed and the downstream river could be re-engineered if the flow cannot be modified. The morphology characteristics of the downstream river are impacted (between the dam and the first tributary the morphology is particularly poor) but it was felt that any measures were not practical at present but this may be re-addressed under Abstraction and Impoundment Licensing 2006 Regulations (AILREGS).

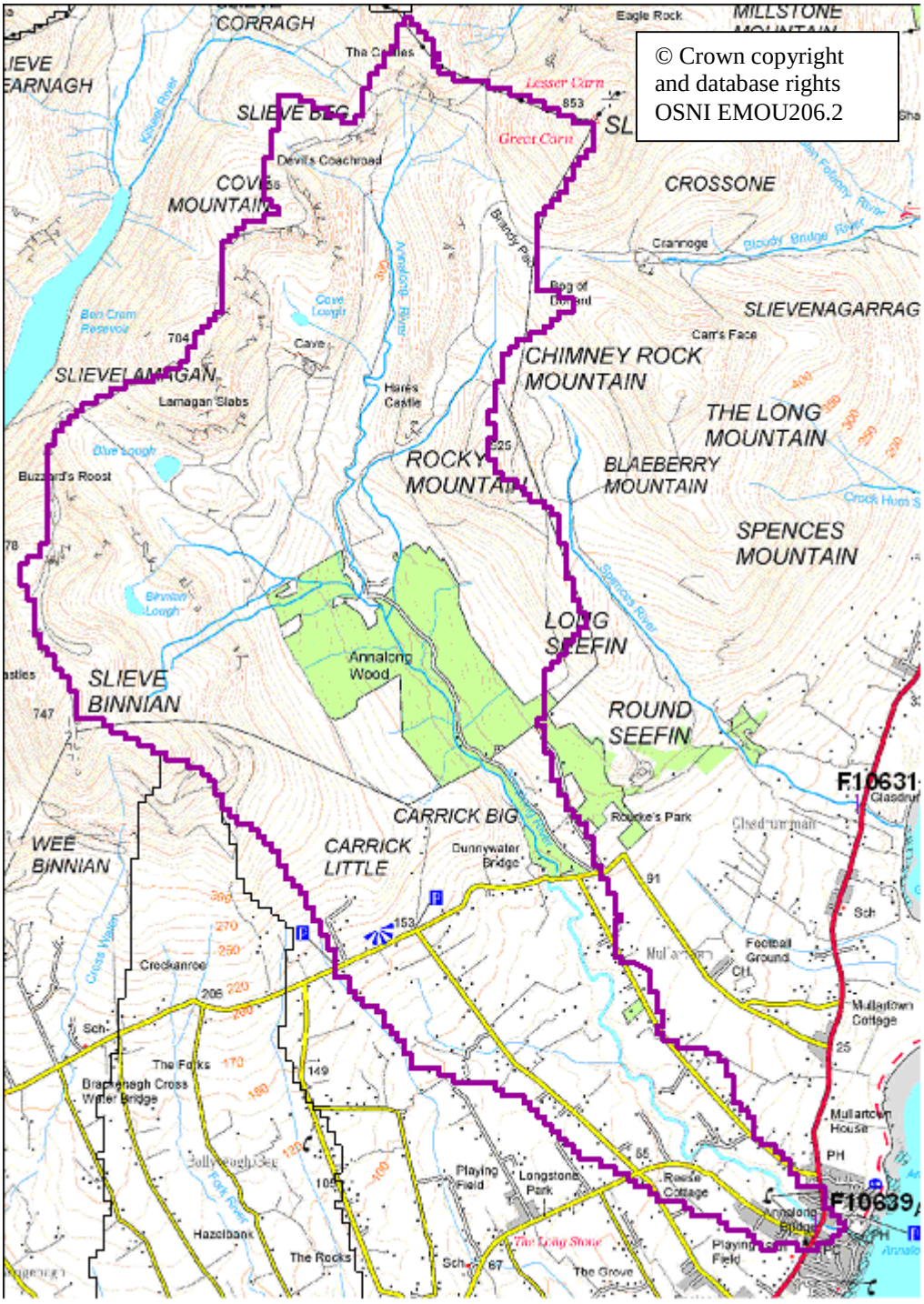
GBNI1NE050505110 – WE / DWS

Workshop classification: MEP
Phys/Chem status: Moderate
SP: Moderate
Biological status: Good

2009 Classification: MEP

GBNI1NE050505036 – DWS

Impoundment Name/Works	Annalong
Morphological Impact	Yes Impoundment Present
Height of Impoundment	Unknown
Compensation Flow Ml/D	No
Hydrology Impacted	Yes
Wider Environment	On the edge of Eastern Mournes ASSI, AONB, SAC



Annalong

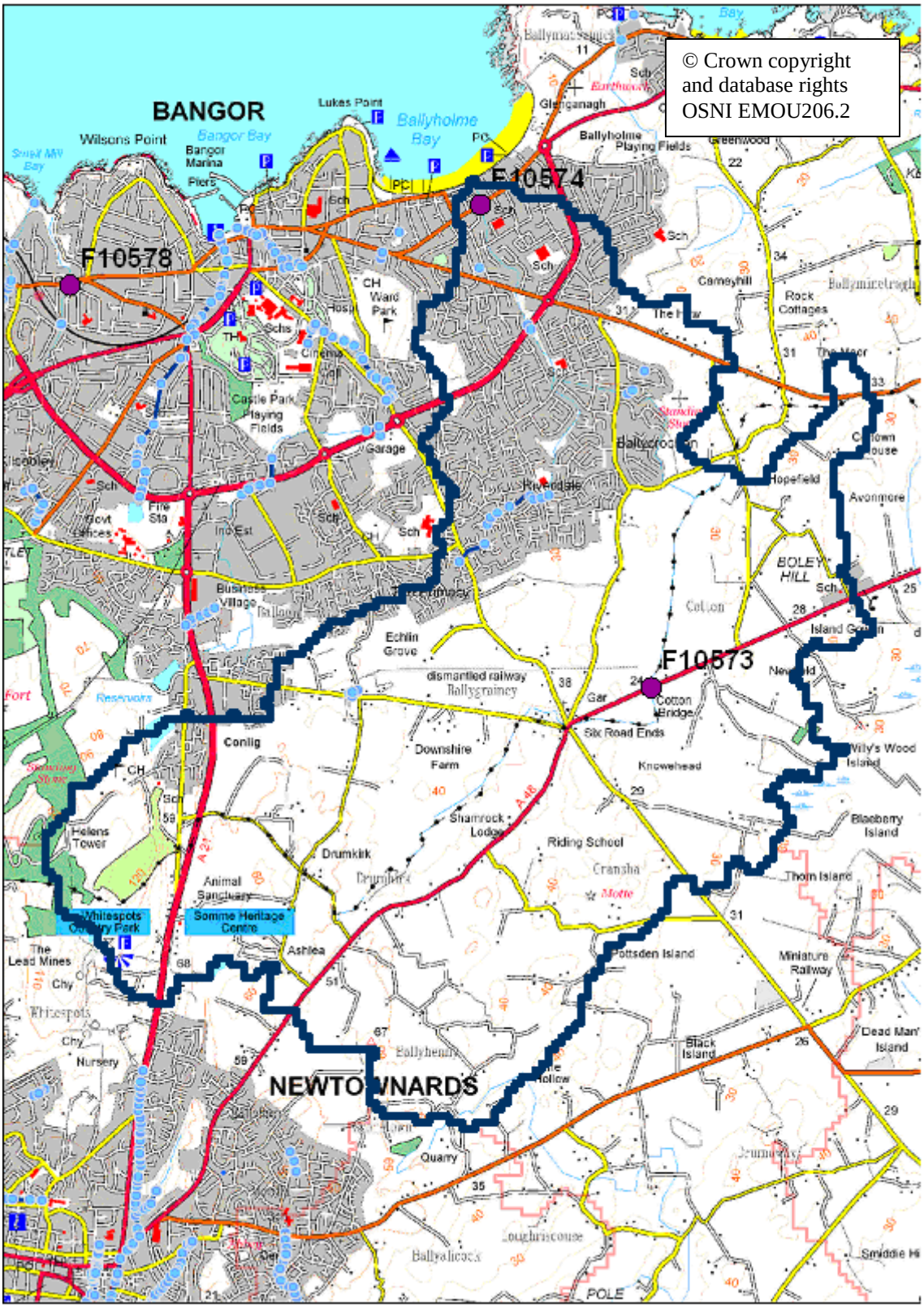
At the workshop it was discussed that there is no compensation flow. As a consequence trout present in the river are impacted by the barrier. Mitigations could be put in place such as fish passes that are not currently present. The hydrology and morphology of the river downstream are impacted but if a baseline flow can be established this will help mitigate these impacts. This needs to be taken forward with NIW.

GBNI1NE050505036 – DWS

Workshop classification: MEP
Phys/Chem status: High
SP: Moderate
Biological status: Moderate (invertebrates)

2009 Classification: MEP

GBNI1NE050502084 – FRM



Ballyholme (Bangor)

The Ballyholme water body extends from the outskirts of Newtownards to Ballyholme Bay at Bangor. The upper reaches are agricultural - mainly dairy farms with a little arable land and the bottom of the catchment is heavily urbanized. The water course is culverted in places and the open reaches have concrete banks in most of the urban area. There is a weir and a level gauge at Sandhurst. There are artificially straightened stretches along the Cotton River.

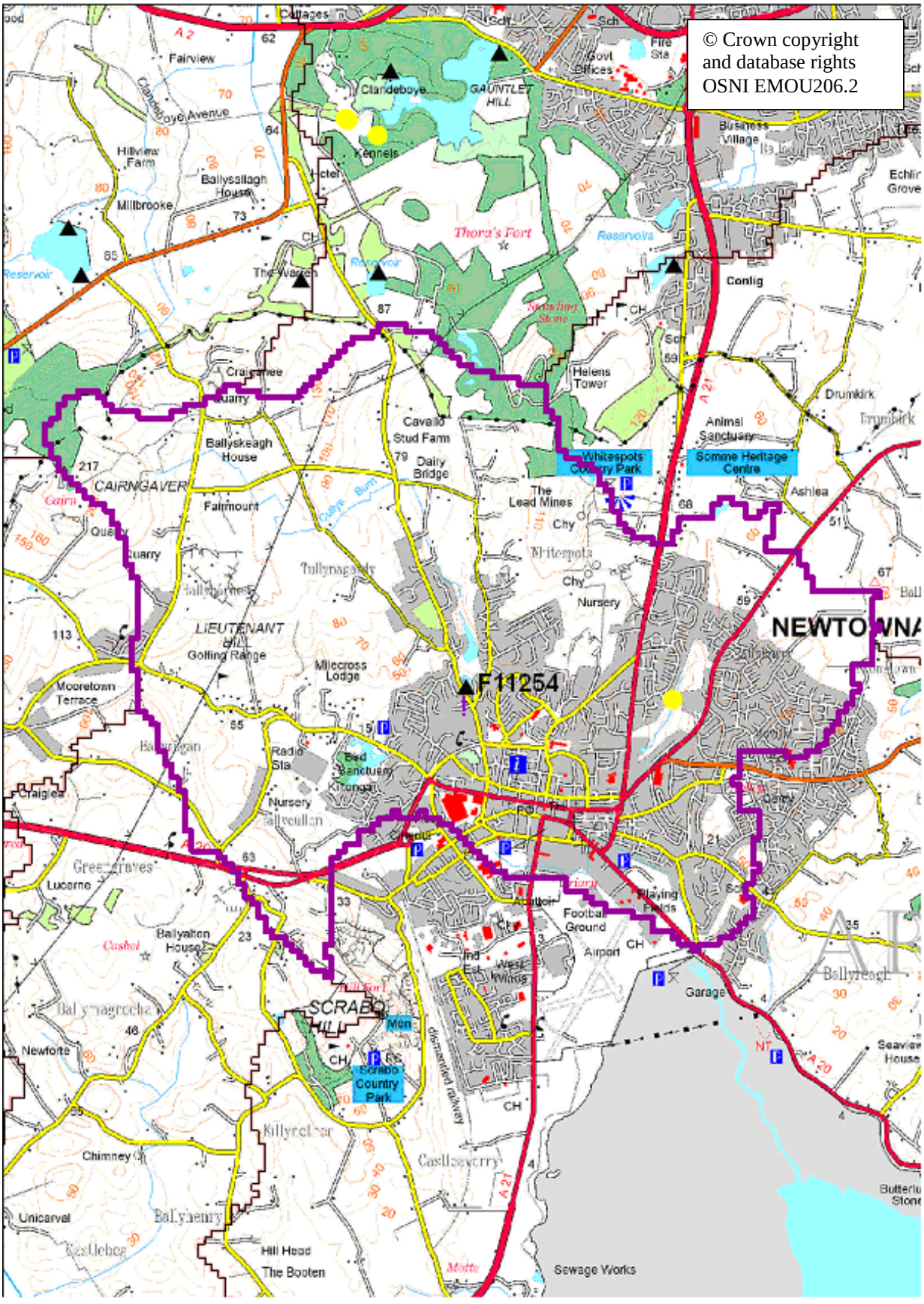
From the workshop there are a number of impacts on the waterbody. However, it is not practical to implement mitigation measures for many of these due to the proximity of the channel to the urbanisation. Sticklebacks and eels are present in the channel although there is limited habitat. The possibility of introducing Sustainable Urban Drainage Scheme (SUDS) and encouraging the Northern Ireland Countryside Management Scheme (NICMS) in the rural area were also discussed.

GBNI1NE050502084 – FRM

Workshop classification: MEP
Phys/Chem status: Moderate
SP: Good
Biological status: Bad (invertebrates and fish)

2009 Classification: BEP

GBNI1NE050504085 - FRM



Cully's Burn (Newtownards)

The Cully's Burn through Newtownards is a sloping concrete channel only culverted in places, but many of the feeder streams are completely culverted through the town. The channel has been straightened and a weir has been noted. Inputs include field and road drains and quarry and sewage overflow pipes. The upper reaches are grassland with grazing.

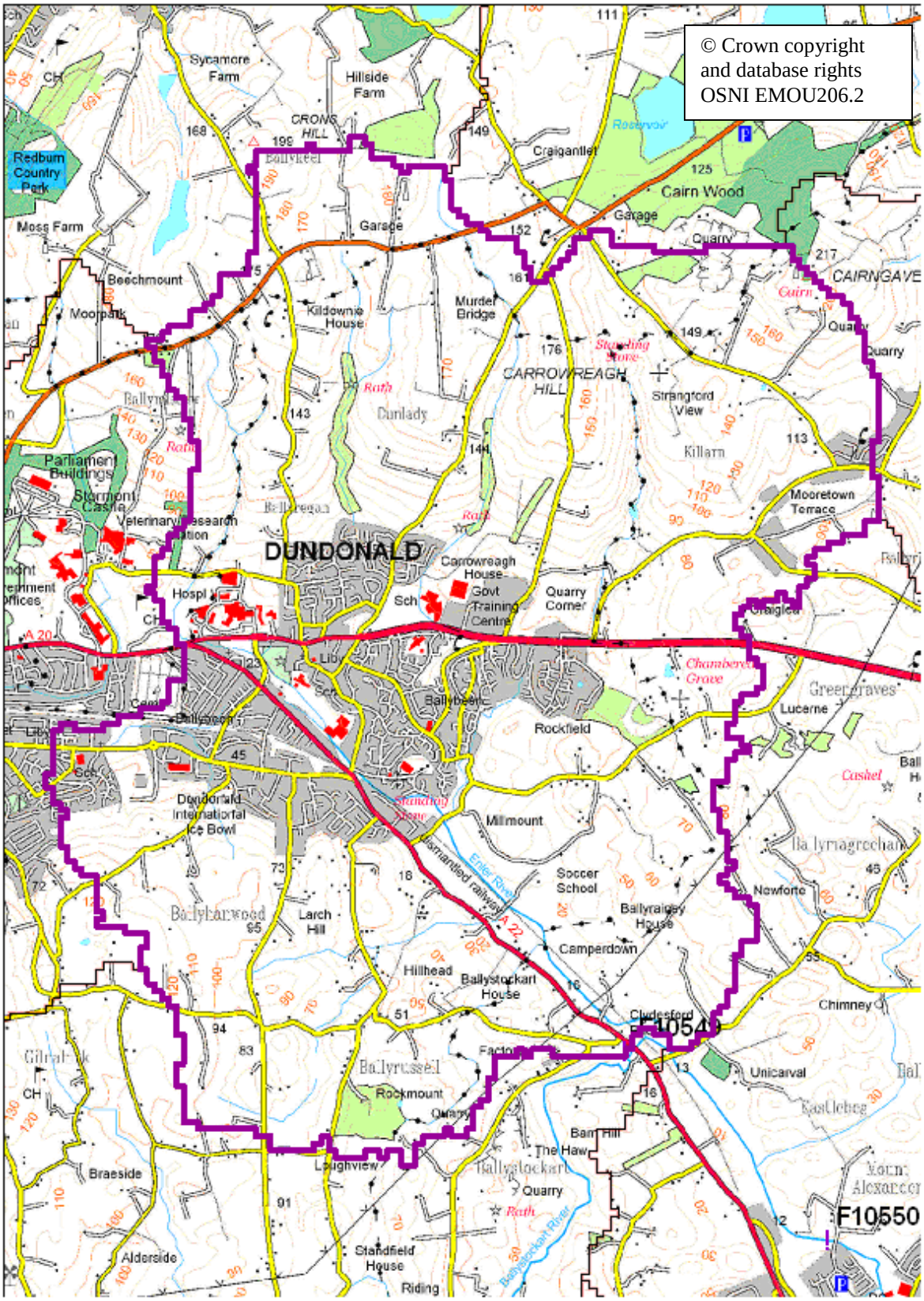
At the workshop it was discussed that the pressures present were not practical to mitigate for such as the culverts through the town, or they had measures in place that were adequate such as the outfalls from the quarry having appropriate techniques to limit detrimental effects. More information on the current land management strategies and practicality of implementing SUDS could be assessed. DARD may be able to provide further information on NICMS.

GBNI1NE050504085 - FRM

Workshop classification: GEP
Phys/Chem status: Moderate
SP: Moderate
Biological status: Nothing

2009 Classification: MEP

GBNI1NE050504080 – FRM



Enler (Dundonald)

The Enler water body encompasses Dundonald, Knock golf course and the surrounding rural areas with crops and cattle. Tributaries in the town are extensively culverted and parts of the Enler River appear artificially straightened. Field and road drains and a sewage pumping station have direct inputs into the river.

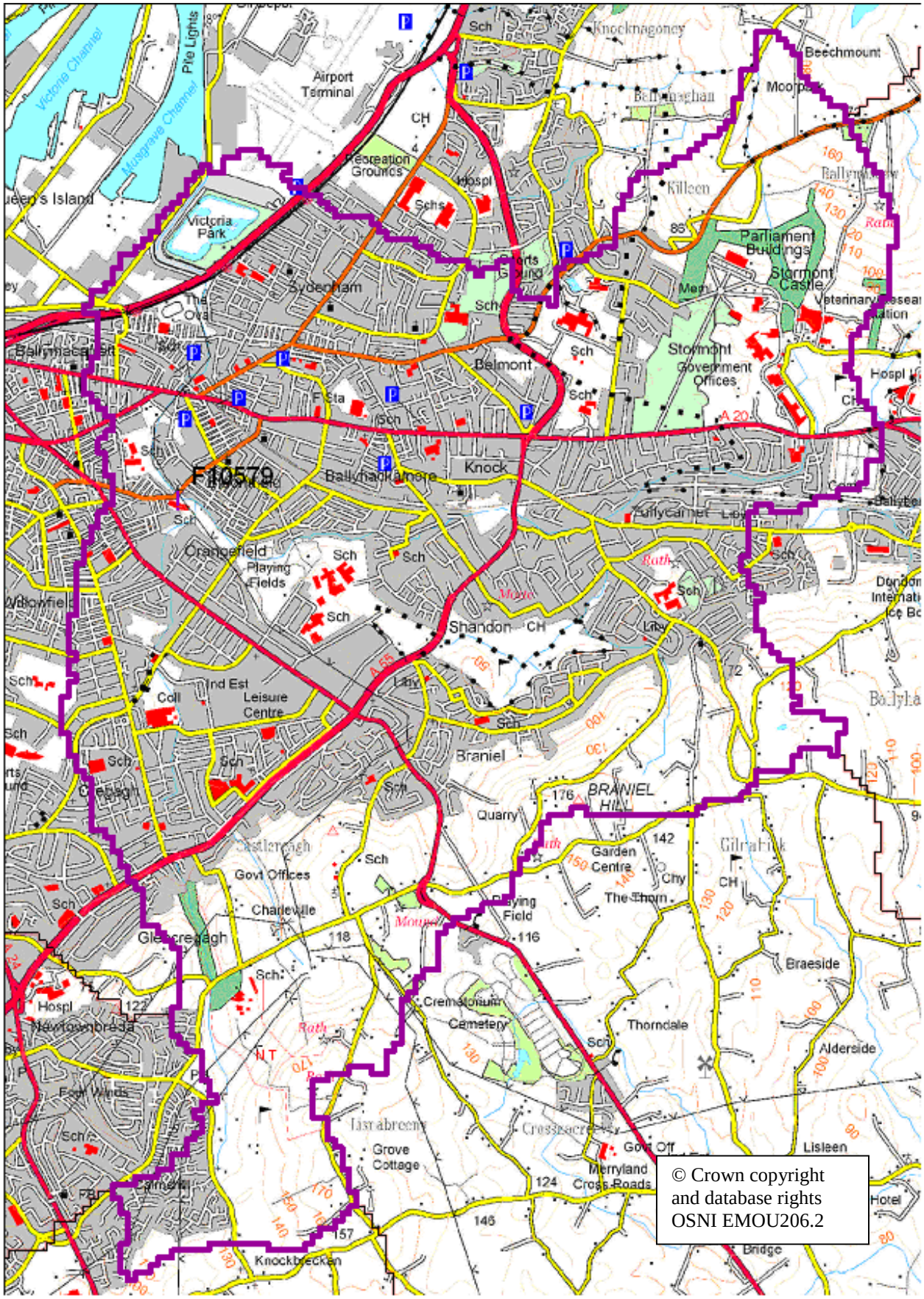
From the workshop it was discussed that at present the in-channel habitat could be enhanced particularly given that there is a good brown trout population.

GBNI1NE050504080 – FRM

Workshop classification: MEP
Phys/Chem status: Moderate
SP: High
Biological status: Poor (invertebrates)

2009 Classification: PEP

GBNI1NE050503087 – FRM



Connswater (Belfast)

The Connswater system is heavily modified due to the extensive flood risk management. Approximately 50% of the rivers are culverted and the open stretches combine concrete and masonry. There are weirs and sections of the river that have been artificially straightened. Combined sewer overflows (CSOs) are extensive in this area and alien plant species Japanese Knotweed, Giant hogweed and Himalayan balsam are present on the banks.

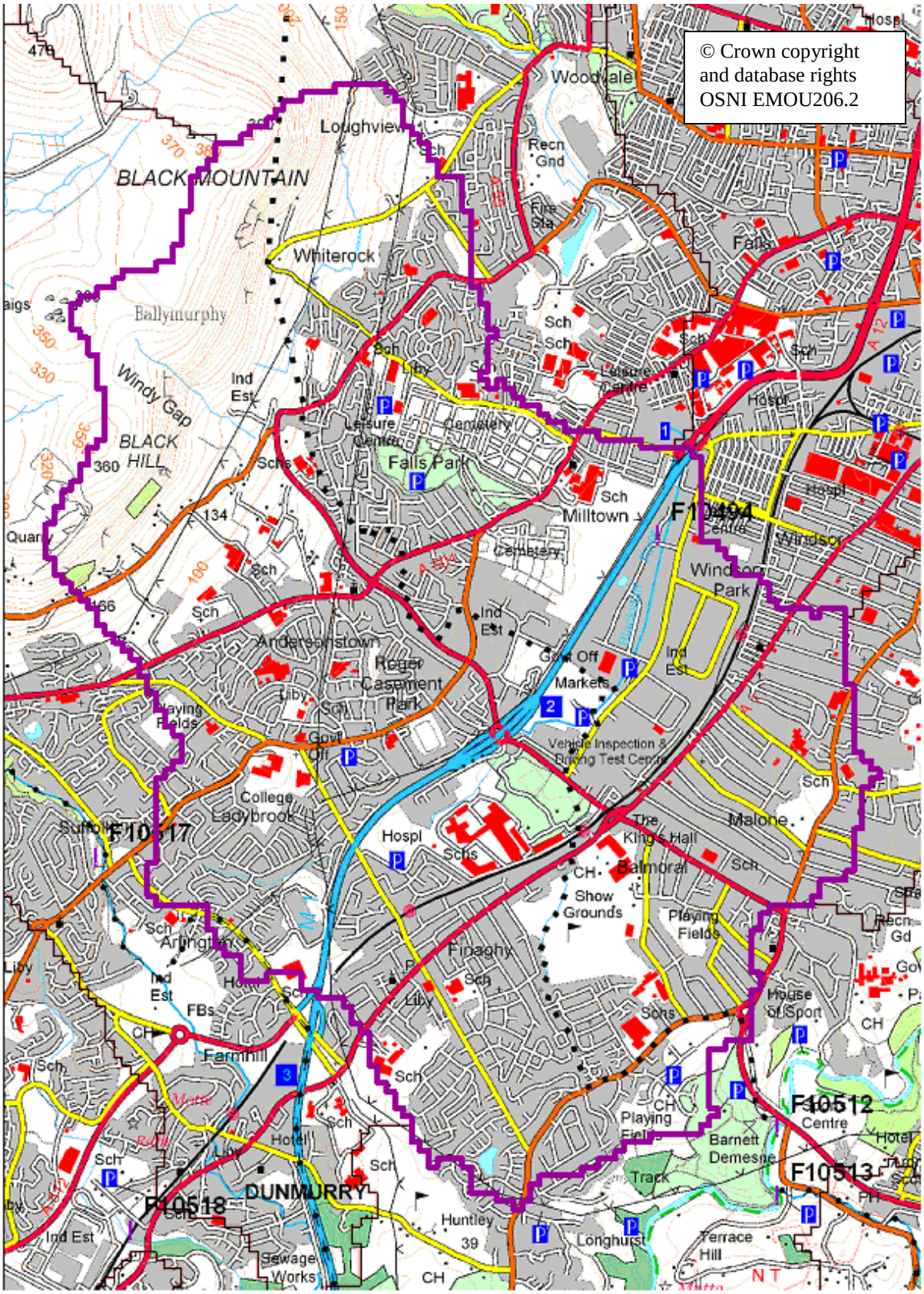
At the workshop it was discussed that the Connswater Greenway Project will start in 2010. This provides an opportunity for hard bank reinforcement to be removed. NIEA and Rivers Agency provide advice to the project.

GBNI1NE050503087 – FRM

Workshop classification: MEP
Phys/Chem status: Moderate
SP: Good
Biological status: Bad (invertebrates and fish)

2009 Classification: BEP

GBNI1NE050503003 – FRM



Blackstaff (Belfast)

This section of the Blackstaff River runs through an extensive urban area in West Belfast. There is bed and bank reinforcement on the small open stretches, but approximately 90% of this water body is culverted. There are road drains and combined sewer overflows including those at Glenmachan Street and the Falls Road.

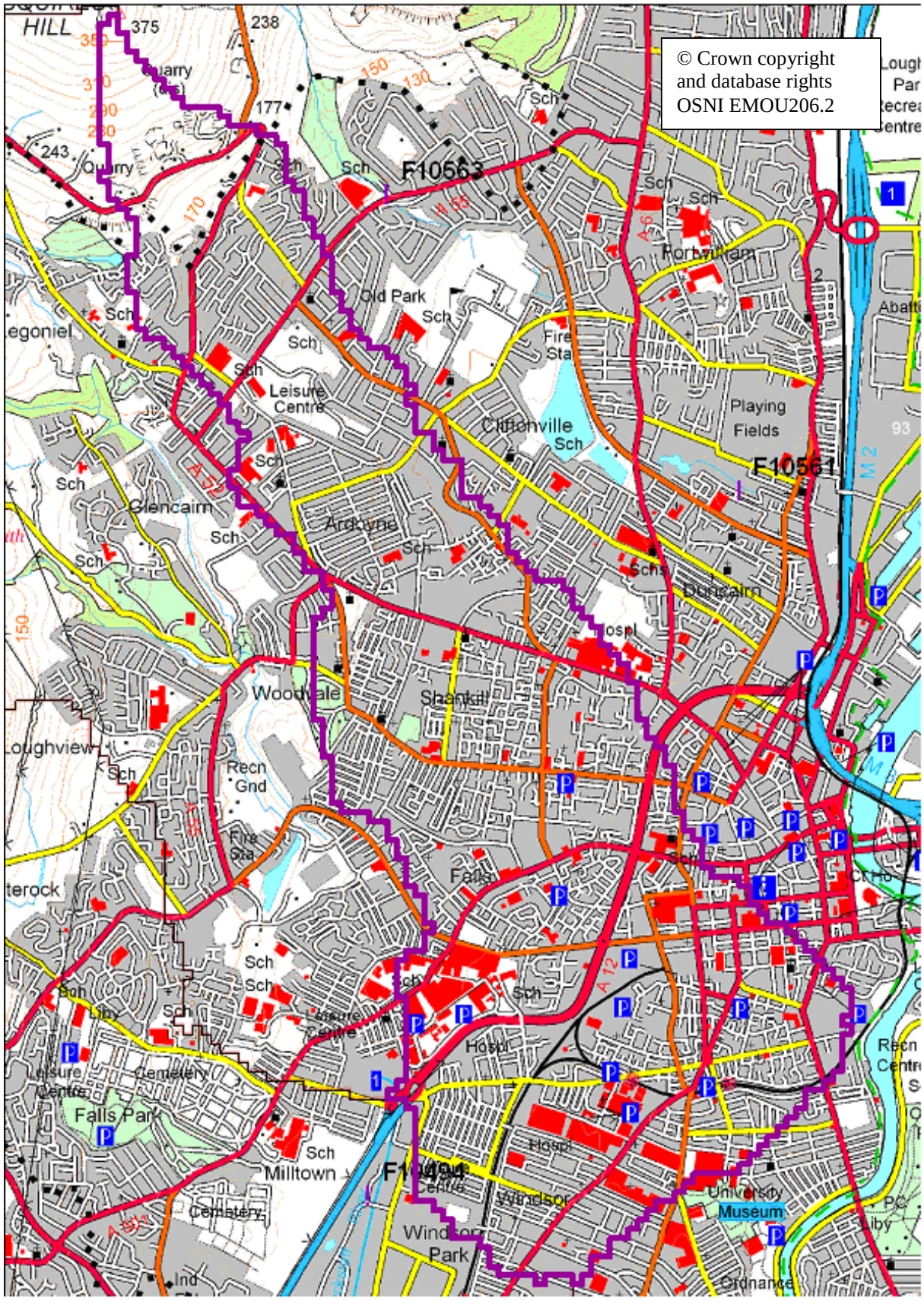
From the workshop it was discussed that there is little scope to put measures in place due to the amount of urbanisation. An area of concern is the potential transfer of alien species, particularly Himalayan Balsam to the Bog Meadow Nature Reserve. There is no official POM to deal with bank side aliens. For example, Rivers Agency only removes alien species where a health and safety issue to staff members arises.

GBNI1NE050503003 – FRM

Workshop classification: MEP
Phys/Chem status: Moderate
SP: Moderate
Biological status: Bad (invertebrates)

2009 Classification: BEP

GBNI1NE050503002 – FRM



Blackstaff (Belfast)

The Blackstaff water body is 99% culverted through this heavily urbanized part of North and West Belfast. The channel appears quite straight and is only open in a few places such as Ballysillan playing fields, Deerpark and Tennant Street.

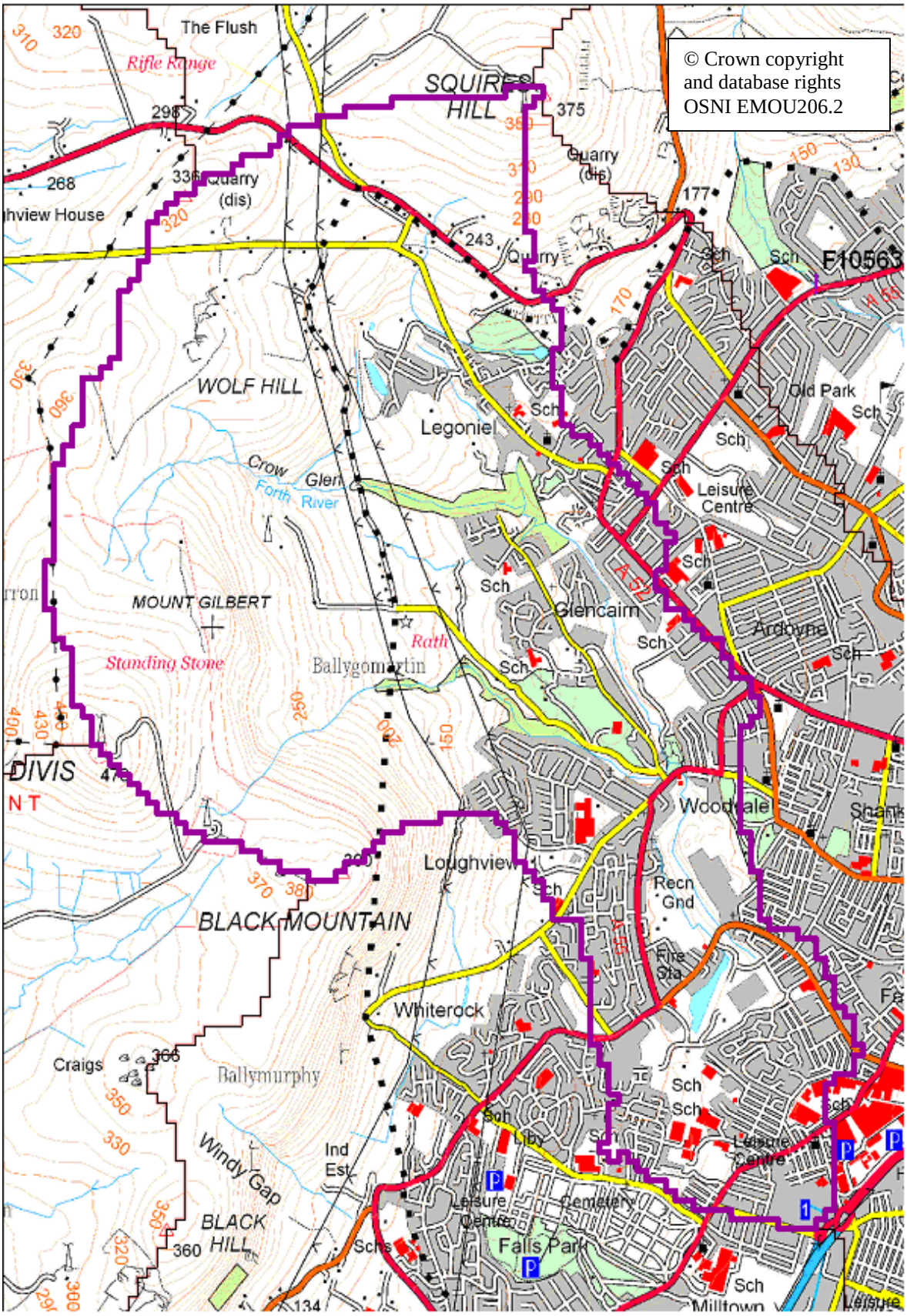
From the workshop it was discussed that there is a weir present on Townsend Street but the installation of fish passes was not practical or was not required. There was a query raised over whether the combined sewer overflows (CSO) were part of the Belfast sewer improvement scheme. NIEA Utilities confirmed that the upgrade of CSO system is being implemented.

GBNI1NE050503002 – FRM

Workshop classification: GEP
Phys/Chem status: Moderate
SP: Moderate
Biological status: Bad (invertebrates)

2009 Classification: BEP

GBNI1NE050503119 – FRM



Clowney Water (Belfast)

The Clowney River Water body contains streams from the Divis Mountain grassland travelling through urbanized areas of Belfast (Ligoniel and Woodvale). Approximately 50% of the rivers in this area are culverted and open parts have concrete channels. The river was historically straightened at Ligoniel for mills. Inputs from combined sewer overflows and field and road drains are present.

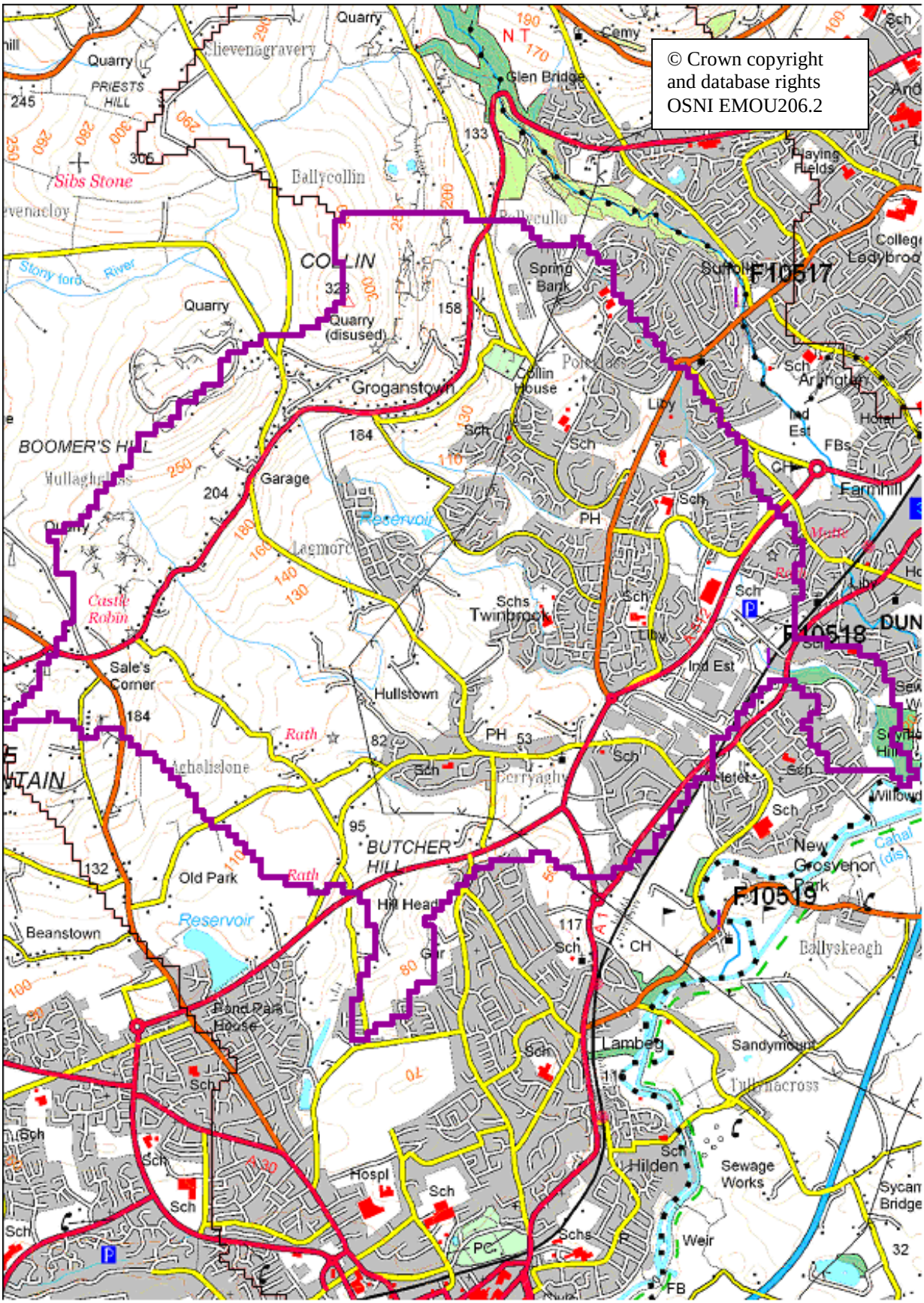
From the workshop it was discussed that although there are pressures they were either not impacting significantly on the ecology or the mitigation measures are not practical. It is unclear if there are any flood banks and floodwalls in this water body. More information is required.

GBNI1NE050503119 – FRM

Workshop classification: MEP
Phys/Chem status: Moderate
SP: Moderate
Biological status: Nothing

2009 Classification: MEP

GBNI1NE050503104 – FRM



River Lagan Tributary (Derriaghy River)

The Derriaghy River is a tributary of the Lagan on the outskirts of Belfast towards Lisburn. Culverts are significant on the lower stretches with some gabion baskets in the upper reaches and concrete in the lower open sections. The channel has been straightened and there are many road drains through the housing estates.

From the workshop it was discussed that there are now more culverts present than on the map above. There are concrete channels present in Twinbrook but it was established that a restoration project was previously undertaken by Rivers Agency.

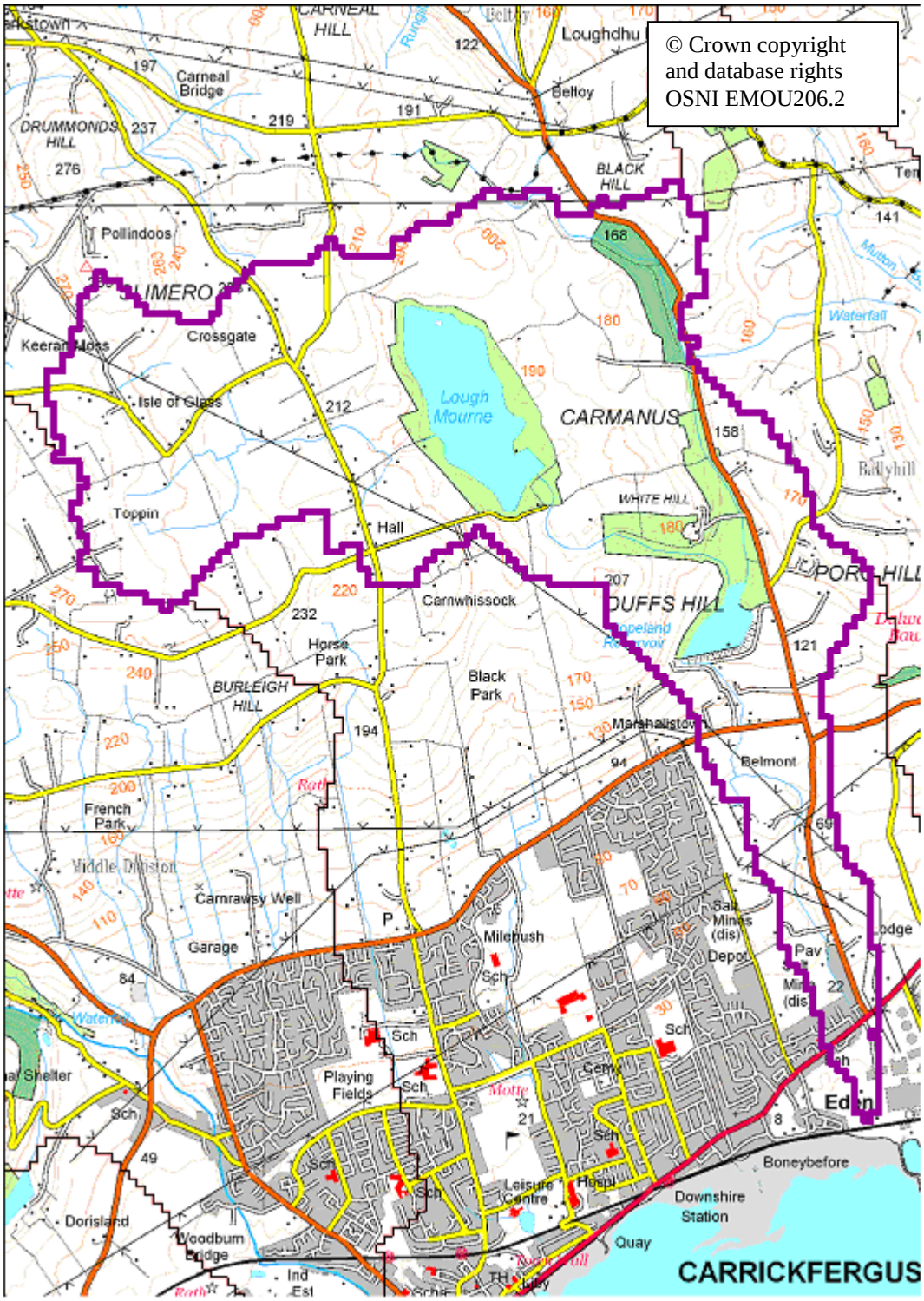
GBNI1NE050503104 – FRM

Workshop classification: MEP
Phys/Chem status: Moderate
SP: Good
Biological status: Poor (invertebrates and macrophytes)

2009 Classification: PEP

GBNI3NE0028 and GBNI1NE050501004 (DWS)

Impoundment Name/Works	Lough Mourne
Morphological Impact	Yes Impoundment Present
Height of Impoundment	8.6m
Compensation Flow Ml/D	No
Hydrology Impacted	Yes



Lough Mourne

From the workshop it was discussed that there are a number of measures not in place that could be implemented. At present there is no compensation flow and the impoundment stands at over 8 metres. It is believed that there would be a trout population present and potentially salmon. Both the hydrology and morphology of the river downstream are impacted on because there is no flow and as such, measures could be put in place to mitigate for this.

GBNI3NE0028 – DWS

Workshop classification for reservoir: MEP
Chemical status: Poor
Biological status; Moderate

2009 Classification of Reservoir: Poor Ecological Potential

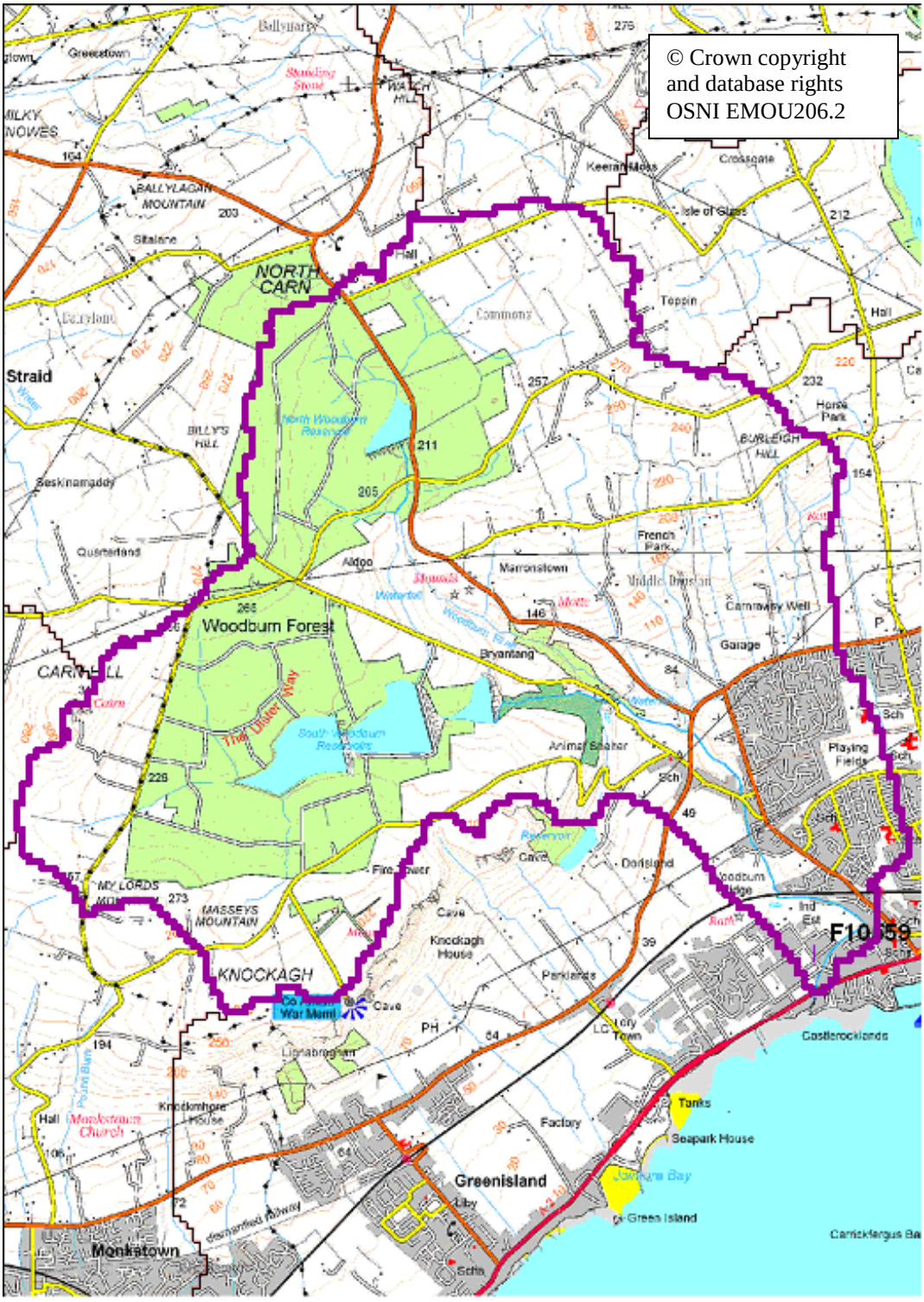
GBNI1NE050501004 – Copeland Water DWS

Workshop classification: MEP
Phys/Chem status: Nothing
Final SP: Nothing
Biological status: Nothing

2009 Classification of River: MEP

GBNI1NE050501120 – DWS

Impoundment Name/Works	Woodburn
Morphological Impact	Yes 3 Impoundment Present
Height of Impoundment	15.5m, 16m and 18m
Compensation Flow Ml/D	No
Hydrology Impacted	Yes



Woodburn

At the workshop it was discussed that the hydrology and morphology of the downstream river was being impacted on by the impoundments. This would need to be taken forward with NIW to see if a compensation flow is feasible. The impoundment is not acting as a barrier as there is a natural barrier downstream preventing fish migration. The storage level was discussed.

GBNI1NE050501120 – DWS

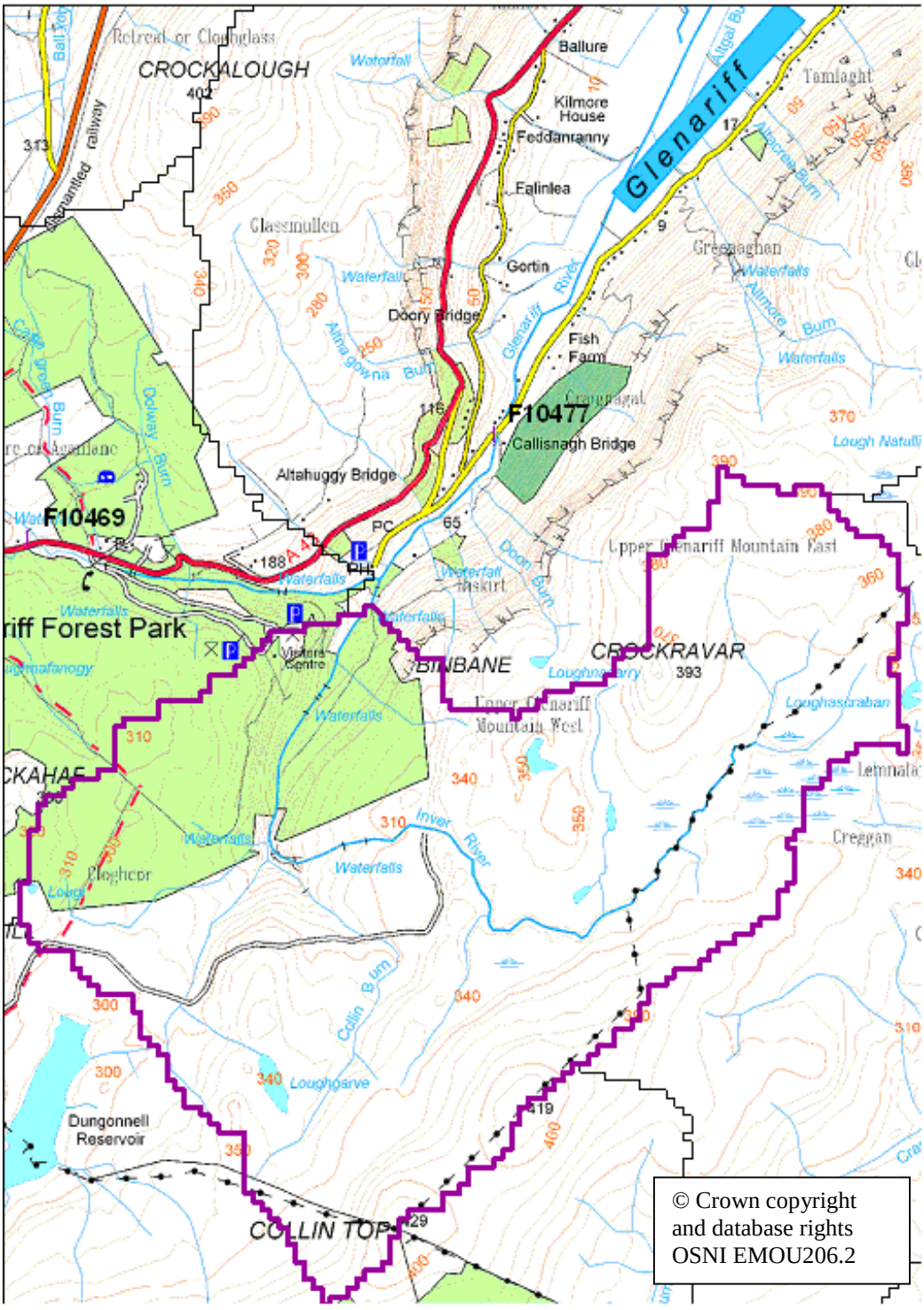
Workshop classification: MEP
Phys/Chem status: Good
SP: High
Biological status: Poor (fish*)

2009 Classification of River: MEP

*Following UKTAG guidance the fish were not able to downgrade classification.

GBNI1NE040403064 – DWS

Impoundment Name/Works	Colin Burn, Inver Burn
Morphological Impact	Yes 5 Impoundments Present
Height of Impoundment	1m,0.5m,1m and 2m
Compensation Flow Ml/D	No
Hydrology Impacted	Yes
Wider Environment	ASSI, AONB, RAMSAR, SAC, SPA



Colin Burn, Inver Burn

From the workshop it was discussed that the hydrology downstream of the impoundment is impacted. This is of concern because the bog and lakes downstream are designated as part of the Garron Plateau. However it was thought that a compensation flow was not necessary as the channel never dries and floods naturally. However it was observed with no water flowing over the weir in the summer 2008. These low flow conditions may be having a significant impact. NIW says it is possible to increase the flow but they need to check the yield. This will be taken forward with NIW and measures for the morphology will be dependent on the flow.

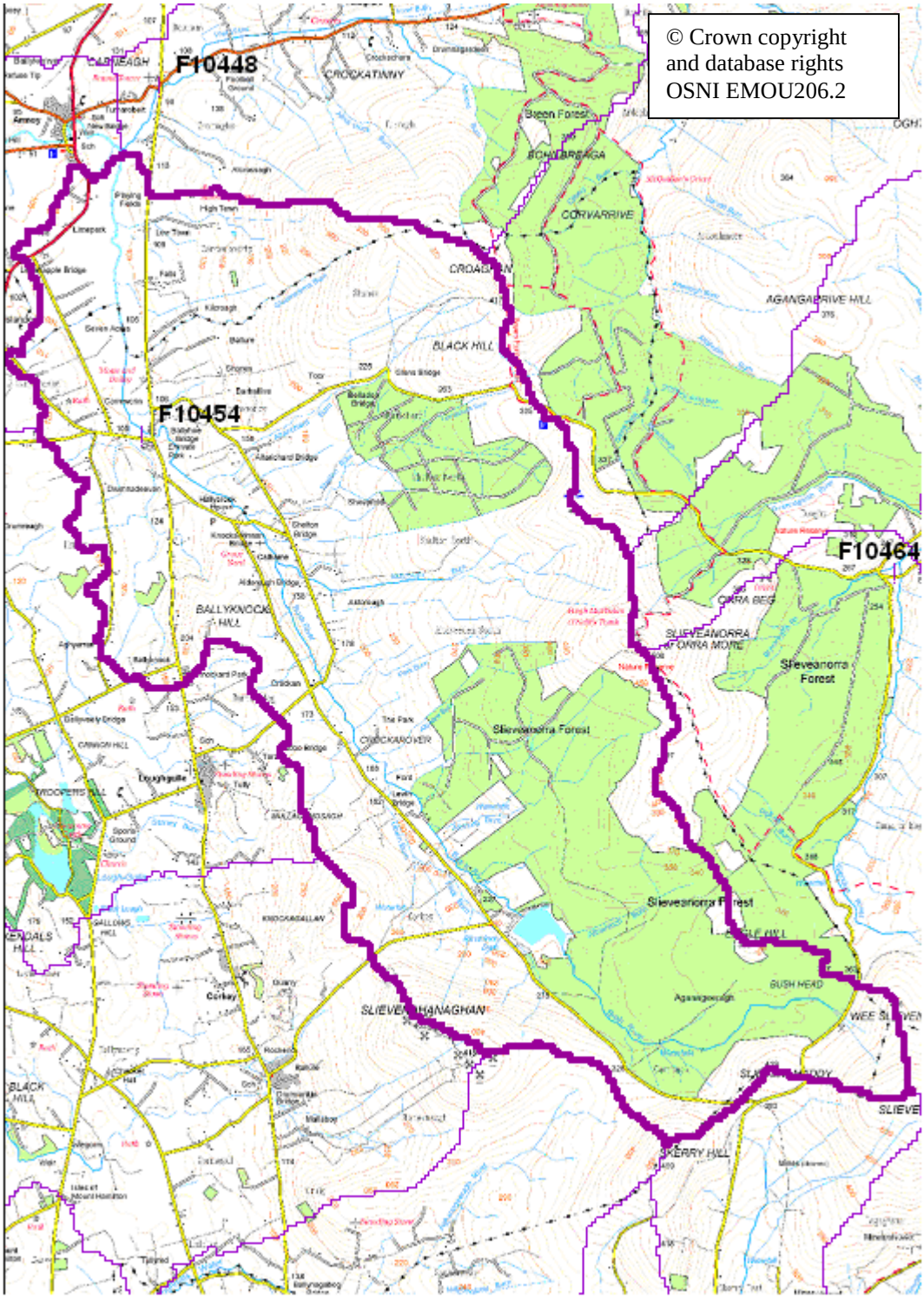
GBNI1NE040403064 – DWS

Workshop classification: MEP
Phys/Chem status: Nothing
SP: Nothing
Biological status: Nothing

2009 Classification of River: MEP

GBNI1NE040404049 – DWS

Impoundment Name/Works	Altnahinch
Morphological Impact	Yes Impoundment Present
Height of Impoundment	23m
Compensation Flow Ml/D	Yes 3.21
Hydrology Impacted	Yes



Altnahinch

At the workshop it was discussed that there is potential to split this water body as it would appear that the modification only impacts on a relatively small area. Some compensation flow is released but a study of River Bush[9] shows that the compensation flow is not sufficient for sediment movement and there is a possibility that the flow could be increased. This would then mitigate for both hydrological and morphological impacts. It is not known whether the dam is acting as a barrier to fish or whether they naturally would not migrate that far up the system. The issue that sediment may be impacting on spawning grounds was raised.

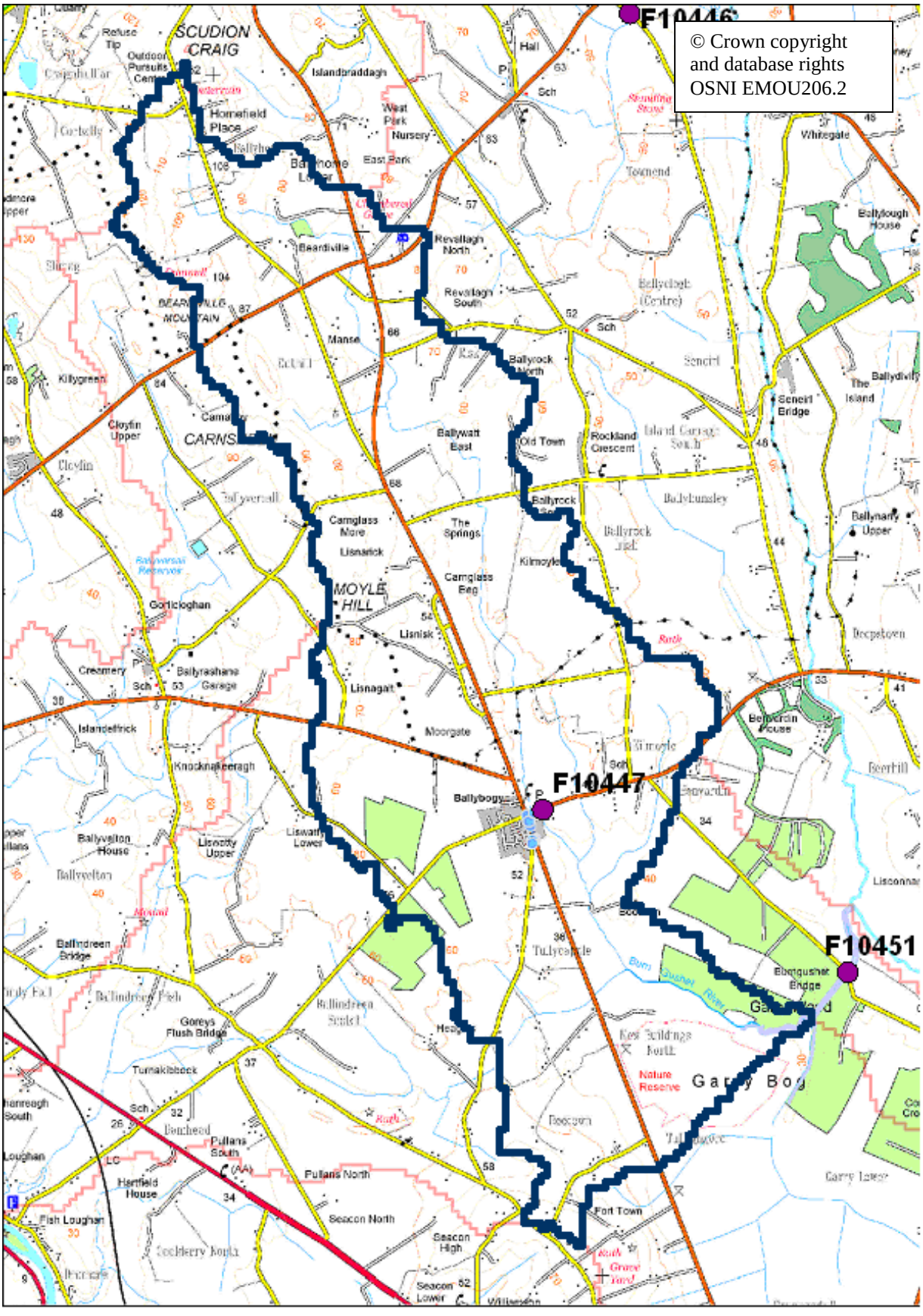
GBNI1NE040404049 – DWS.

Workshop classification: MEP
Phys/Chem status: High
SP: High
Biological status: Good (invertebrates)

2009 Classification: MEP

[9] Evans, Dr. D.J. and Gibson, Prof. C.E. (2004) The River Bush Integrated Monitoring Project.

GBNI1NE040404053 – WE



Burn Gushet (North of Ballymoney)

The Burn Gushet River was designated due to flood risk management and the water body contains Garry Bog in the bottom corner which is an ASSI, NNR, SAC and Ramsar site containing raised bog. The river has been culverted under roads, has possibly been straightened as there is an old mill race. There is excessive plant growth in parts of the channel. The catchment comprises mainly of pasture. It was provisionally classed as HMWB due to 100% straightening but it would be more accurate to say that it has been extensively re-sectioned.

At the workshop it was discussed that Garry Bog is a raised bog that gets most of its water from precipitation. In addition flooding is an issue in this water body. It was felt that the channel could be re-profiled and re-graded without affecting the wider environment but this needs further assessment.

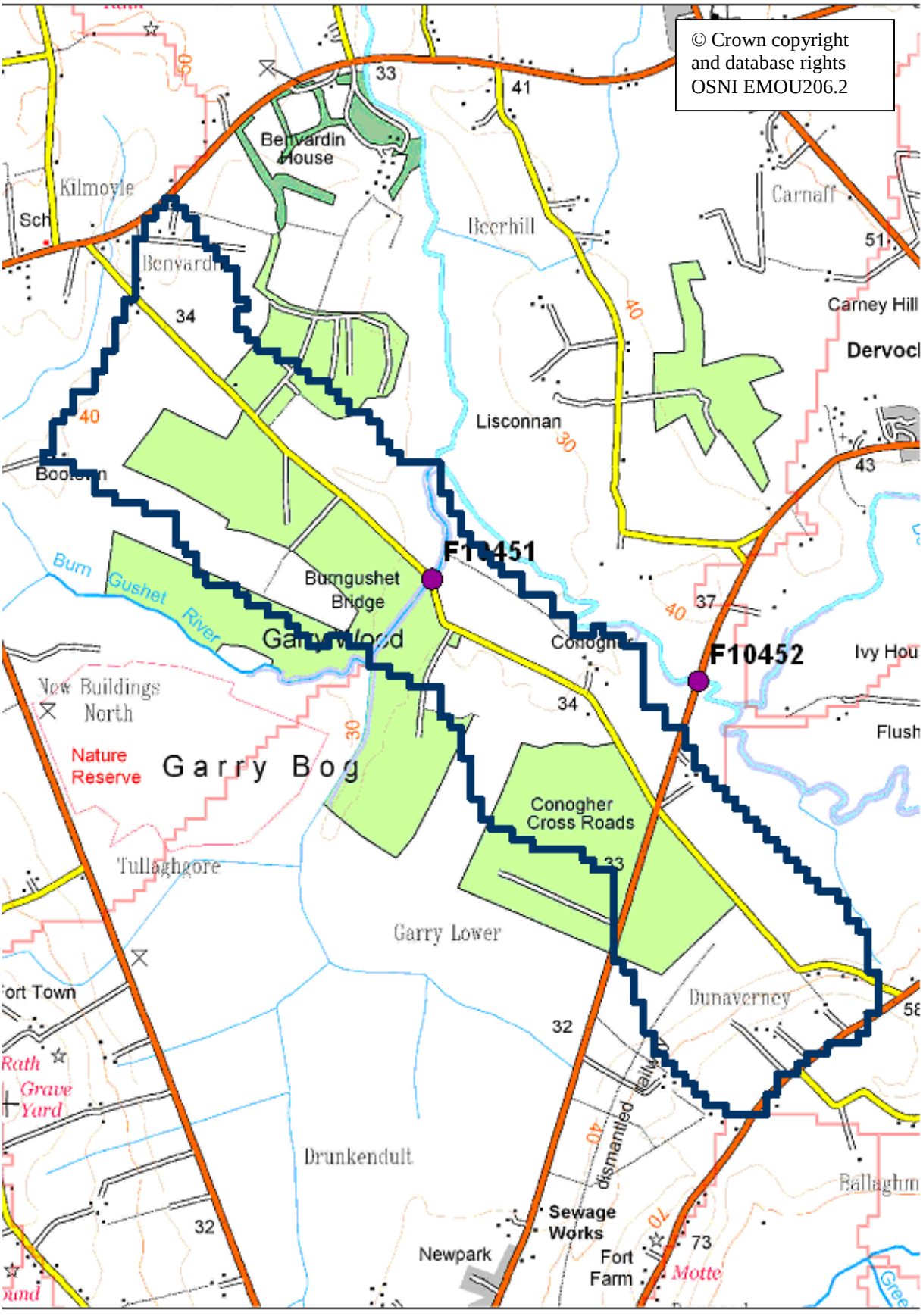
A site visit to this water body took place in March 2009 and RHAT assessments were carried out. The structural elements of the river were less than good at all sites and an area of the river upstream was culverted under fields. Issues recorded include excessive fines in channel, modified bank form and reduced vegetation close to the river.

GBNI1NE040404053 – WE

Workshop classification: MEP
Phys/Chem status: Moderate
SP: Good
Biological status: Poor (invertebrates)

2009 Classification: PEP

GBNI1NE040404054 – WE



Burn Gushet (North of Ballymoney)

This small section of the Burn Gushet goes through Garry Wood where pressures include forestry, improved grassland and channelization (straightening). The river is embanked, with a double set back embankment in one place. There are no recorded weirs and the channel suffers from low oxygen levels. The river is culverted under the road and there are two outlet valves from the forest. It was provisionally classed as HMWB due to 100% straightening but this is re-sectioning similar to the adjacent water body.

At the workshop it was discussed that the sediment is likely to be coming from deforestation of the coniferous forest. Measures should be put in place to mitigate this as they are not present or currently adequate.

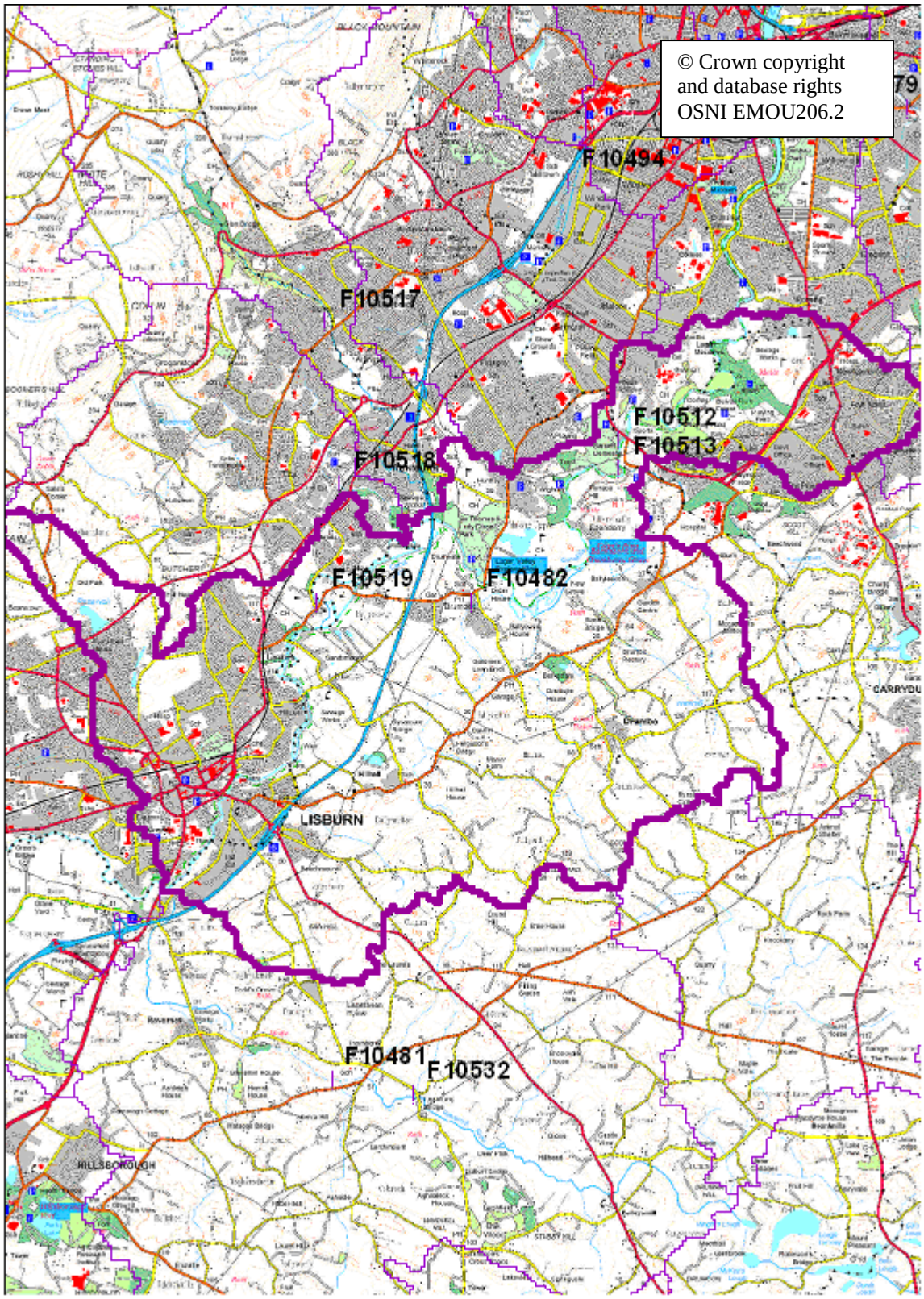
GBNI1NE040404054 – WE

Workshop classification: MEP
Phys/Chem status: Moderate
SP: Good
Biological status: Poor (invertebrates)

2009 Classification: PEP

Additional water body post-workshop:

GBNI1NE050503108 - FRM



Lagan Canal

The Lagan water body at Lisburn was added post-workshop due to modifications for Flood Risk Management. It was initially thought that hard bank protection and realignment would be a pressure due to loss of riparian and marginal habitat but it was felt that there would be no significant ecological impact in this area. There are sluice gates present at Hilden as a flood defence measure which are reactive, meaning they are only operational when required. Although fish passes are present it is not yet known if they are passable by all species and if they cause a barrier to sediment.

GBNI1NE050503108 - FRM

Post-Workshop classification: MEP
Phys/Chem status: Moderate
SP: Moderate
Biological status: Moderate

2009 Classification: MEP